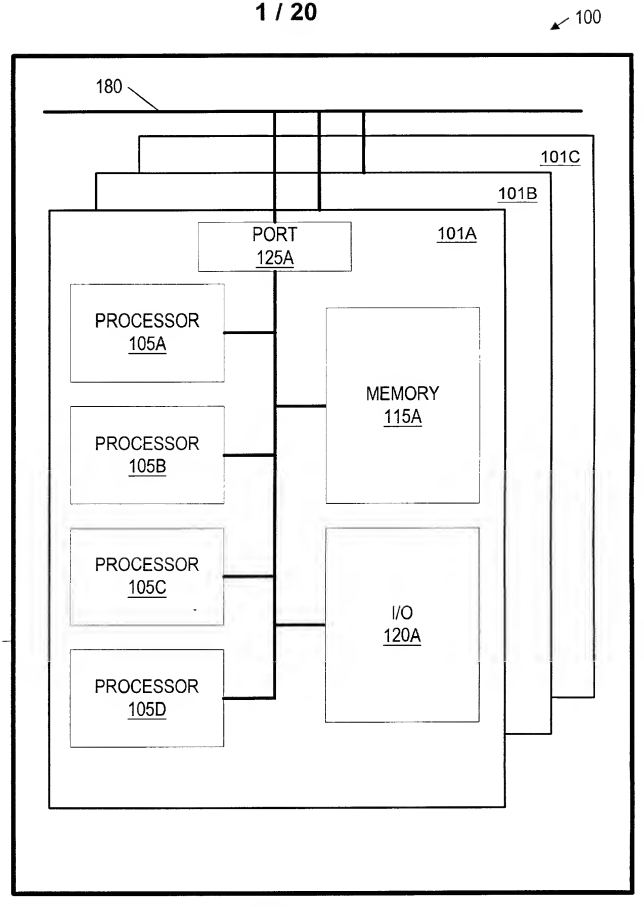
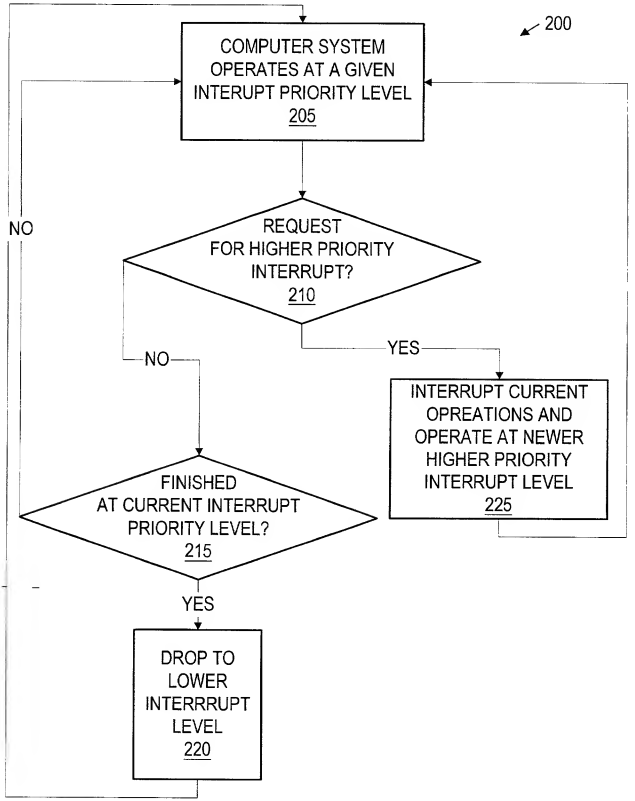


Fig. 1
(Prior Art)

20060106.0902.1009



20080107 666210001

Fig. 2
(Prior Art)

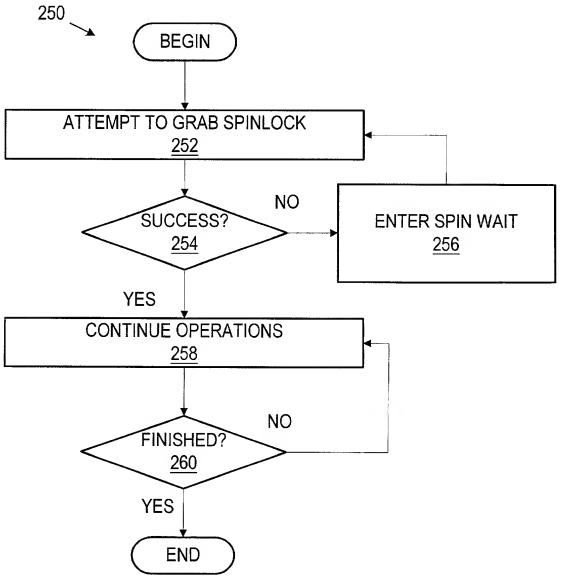


Fig. 3
(Prior Art)

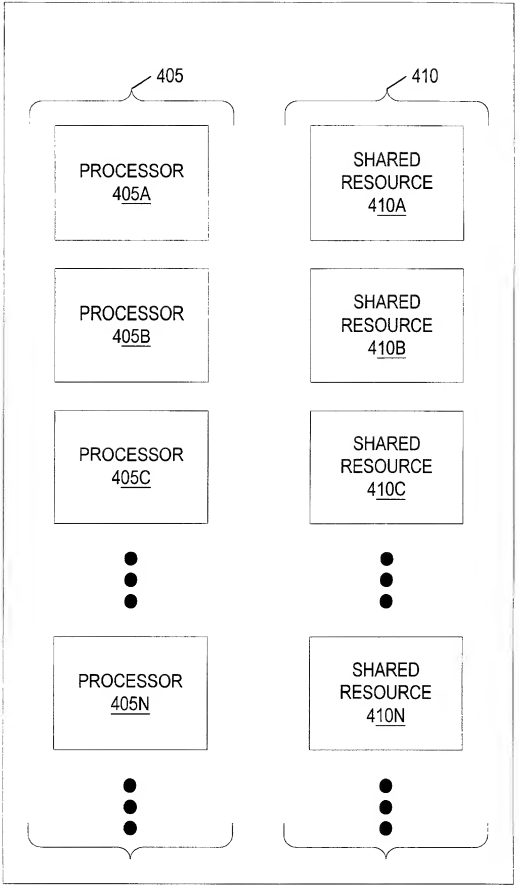
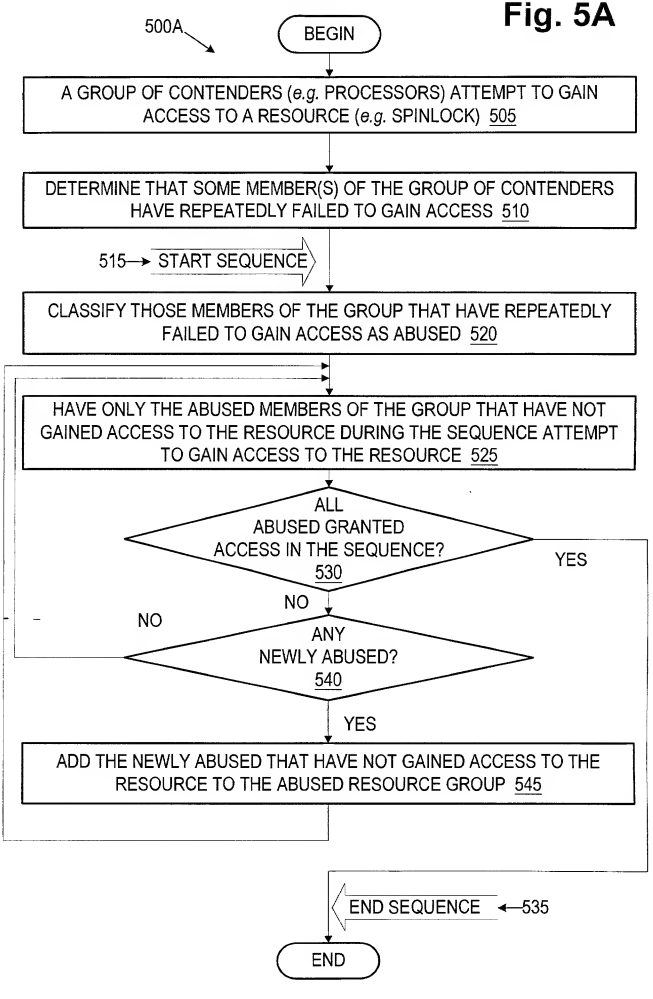


Fig. 4

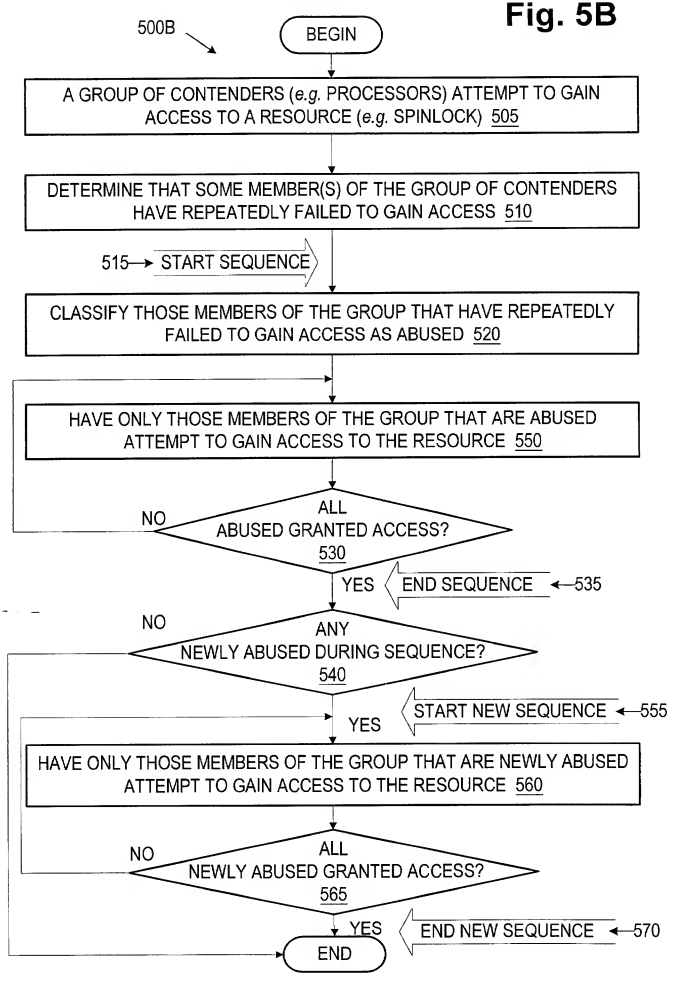
20601D "6662499 1004

Fig. 5A



20070166224001

Fig. 5B



20070066234001

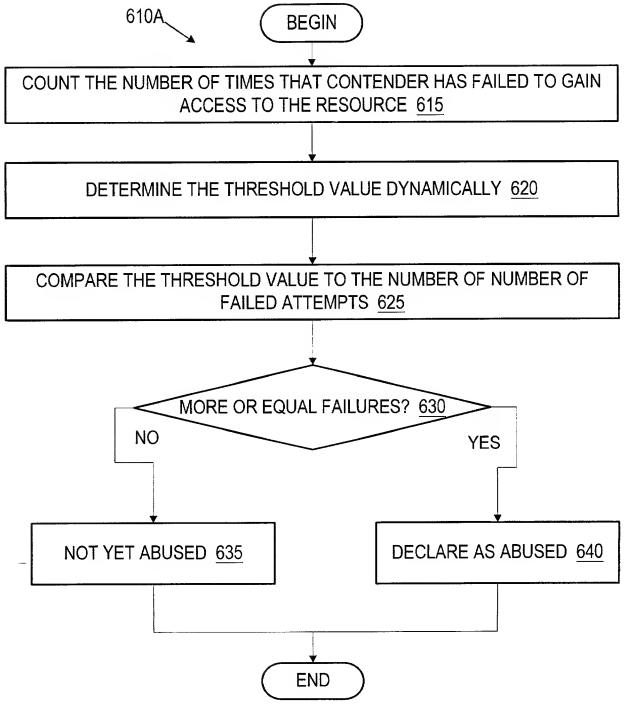

610A
BEGIN
COUNT THE NUMBER OF TIMES THAT CONTENDER HAS FAILED TO GAIN ACCESS TO THE RESOURCE 615
DETERMINE THE THRESHOLD VALUE DYNAMICALLY 620
COMPARE THE THRESHOLD VALUE TO THE NUMBER OF NUMBER OF FAILED ATTEMPTS 625
MORE OR EQUAL FAILURES? 630
NO
YES
NOT YET ABUSED 635
DECLARE AS ABUSED 640
END

Fig. 6A

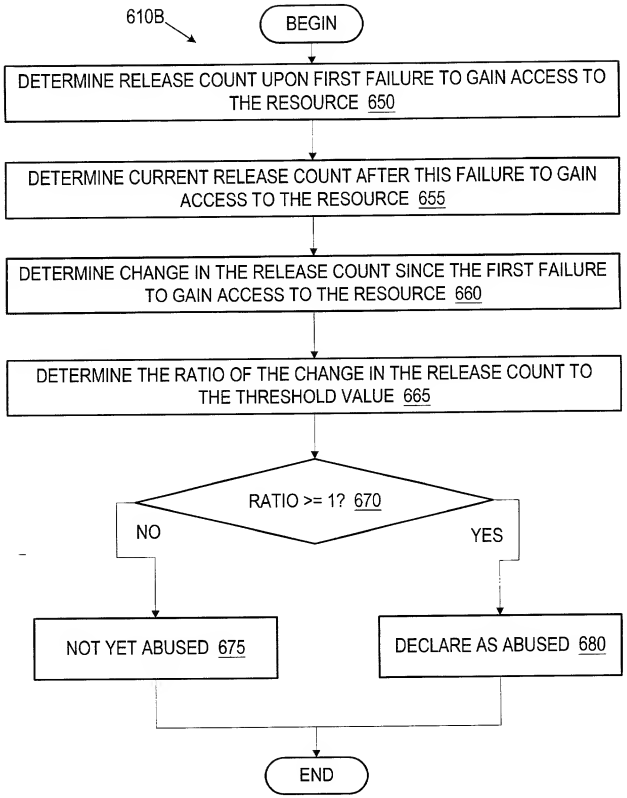

610B
BEGIN
DETERMINE RELEASE COUNT UPON FIRST FAILURE TO GAIN ACCESS TO THE RESOURCE 650
DETERMINE CURRENT RELEASE COUNT AFTER THIS FAILURE TO GAIN ACCESS TO THE RESOURCE 655
DETERMINE CHANGE IN THE RELEASE COUNT SINCE THE FIRST FAILURE TO GAIN ACCESS TO THE RESOURCE 660
DETERMINE THE RATIO OF THE CHANGE IN THE RELEASE COUNT TO THE THRESHOLD VALUE 665
RATIO >= 1? 670
NO
YES
NOT YET ABUSED 675
DECLARE AS ABUSED 680
END

Fig. 6B

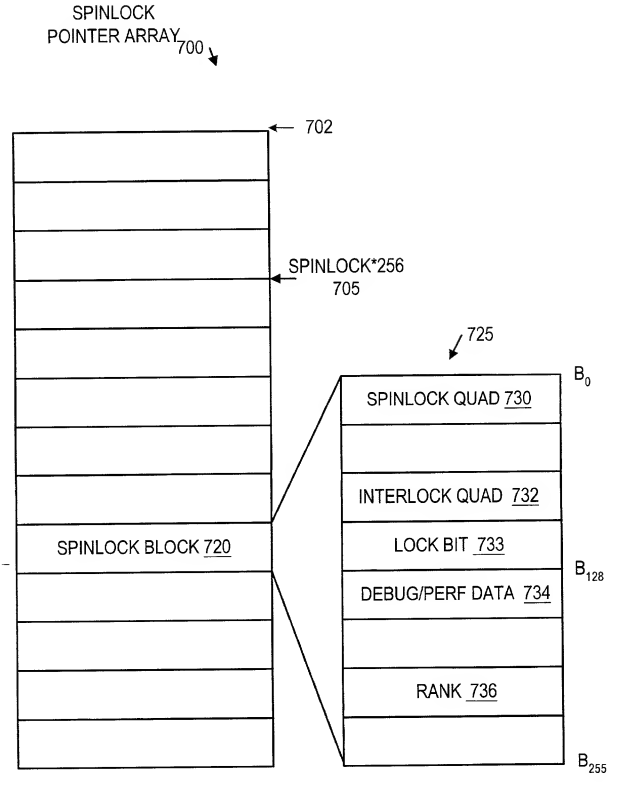


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Fig. 7A

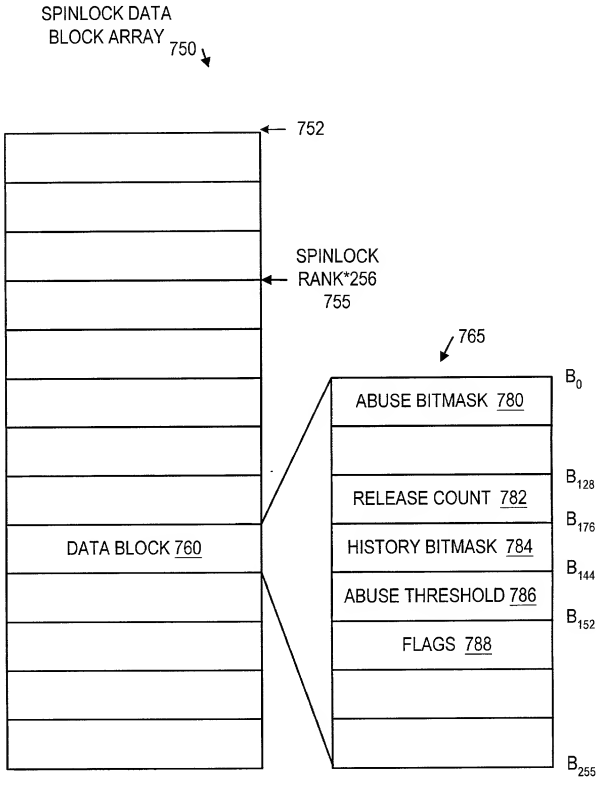

SPINLOCK DATA BLOCK ARRAY 750
752
SPINLOCK RANK*256 755
765
DATA BLOCK 760
ABUSE BITMASK 780
RELEASE COUNT 782
HISTORY BITMASK 784
ABUSE THRESHOLD 786
FLAGS 788
B0
B128
B176
B144
B152
B255

Fig. 7B

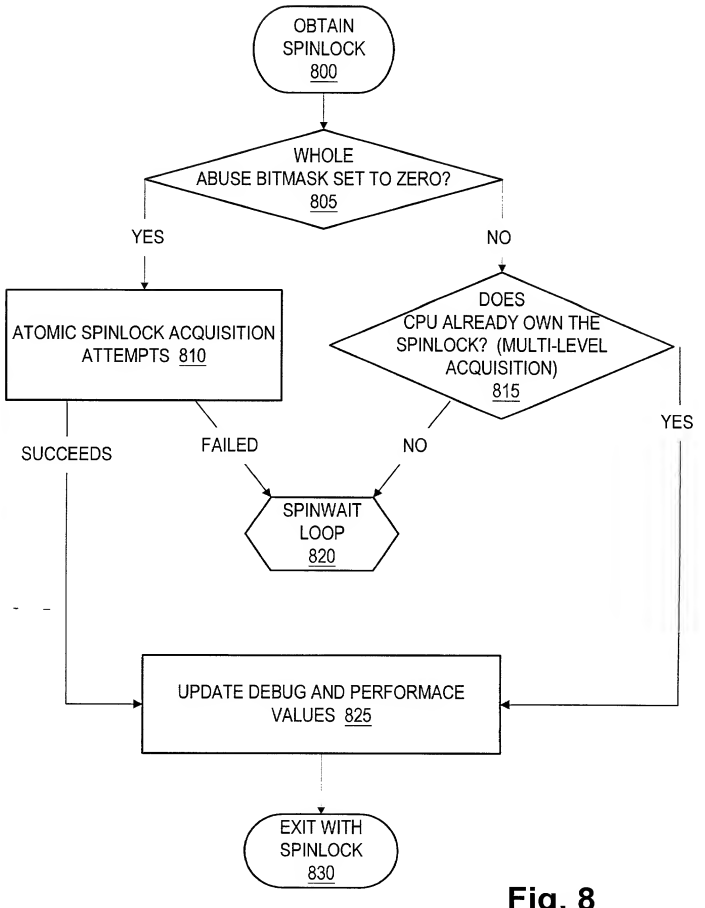

OBTAIN SPINLOCK 800
WHOLE ABUSE BITMASK SET TO ZERO? 805
YES
NO
ATOMIC SPINLOCK ACQUISITION ATTEMPTS 810
DOES CPU ALREADY OWN THE SPINLOCK? (MULTI-LEVEL ACQUISITION) 815
YES
SUCCEEDS
FAILED
NO
SPINWAIT LOOP 820
UPDATE DEBUG AND PERFORMACE VALUES 825
EXIT WITH SPINLOCK 830

Fig. 8

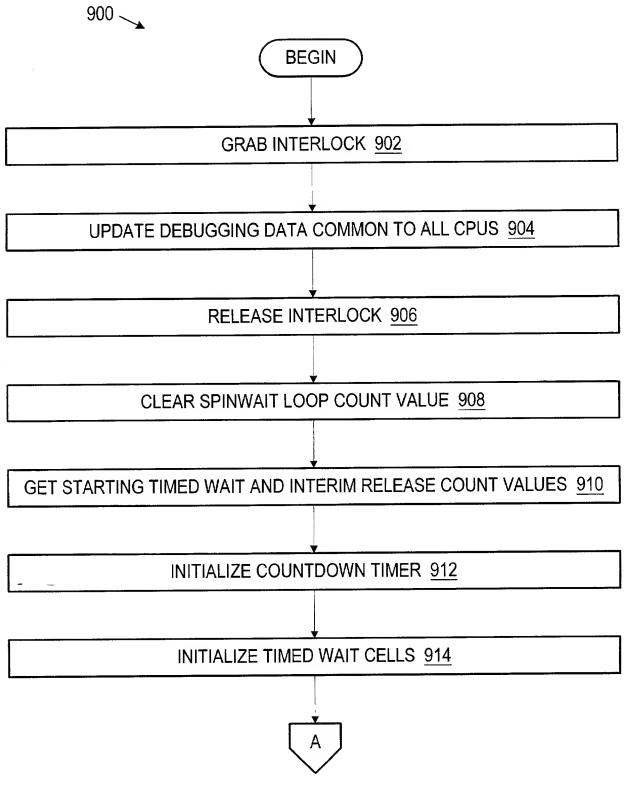

900
BEGIN
GRAB INTERLOCK 902
UPDATE DEBUGGING DATA COMMON TO ALL CPUS 904
RELEASE INTERLOCK 906
CLEAR SPINWAIT LOOP COUNT VALUE 908
GET STARTING TIMED WAIT AND INTERIM RELEASE COUNT VALUES 910
INITIALIZE COUNTDOWN TIMER 912
INITIALIZE TIMED WAIT CELLS 914
A

Fig. 9A

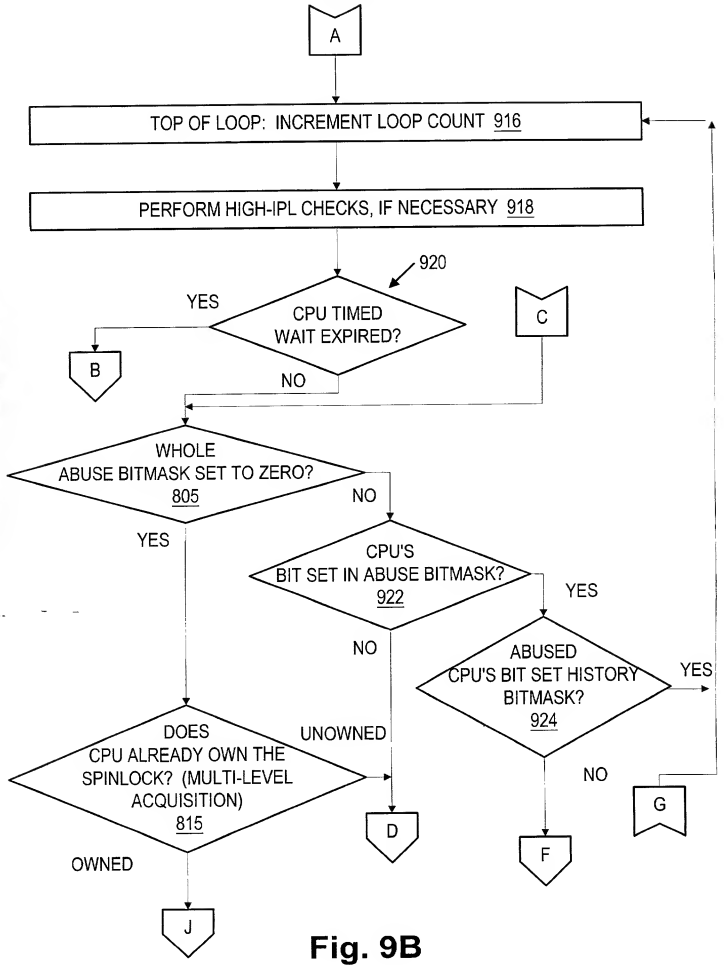
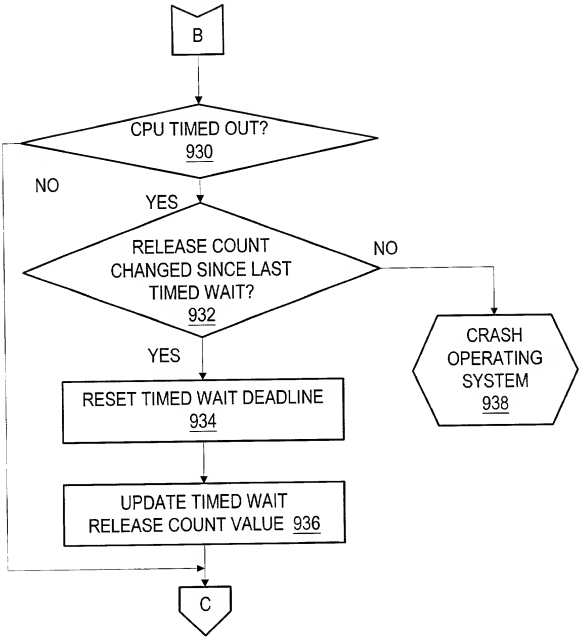


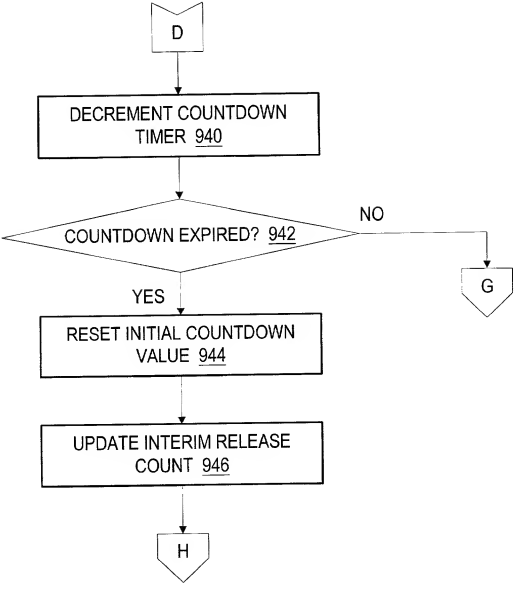
Fig. 9B

2006.01.02 10042999.01



20070166241001

Fig. 9C



20070106624001

Fig. 9D

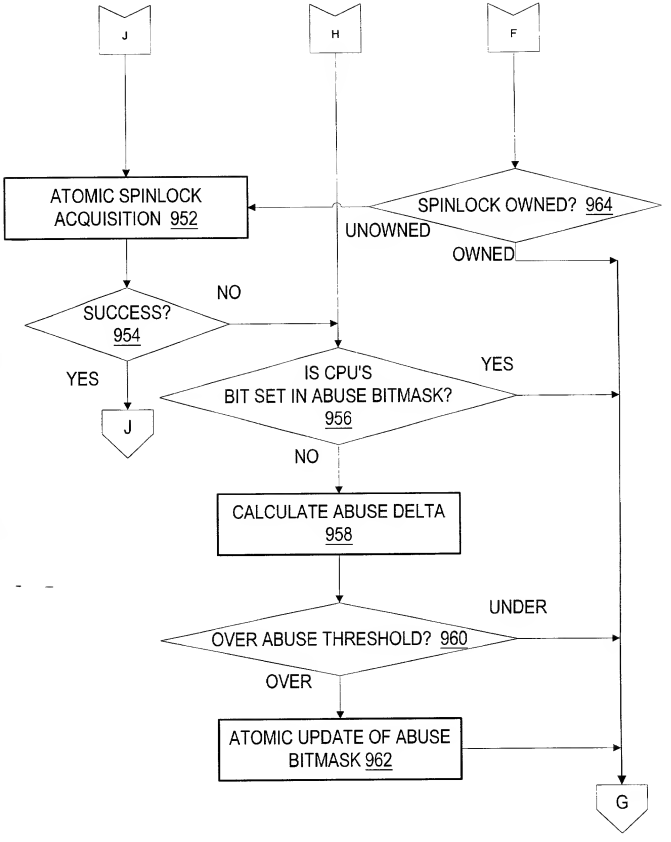

J
H
F
ATOMIC SPINLOCK ACQUISITION 952
SPINLOCK OWNED? 964
UNOWNED
OWNED
SUCCESS? 954
NO
YES
J
IS CPU'S BIT SET IN ABUSE BITMASK? 956
YES
NO
CALCULATE ABUSE DELTA 958
UNDER
OVER ABUSE THRESHOLD? 960
OVER
ATOMIC UPDATE OF ABUSE BITMASK 962
G

Fig. 9E

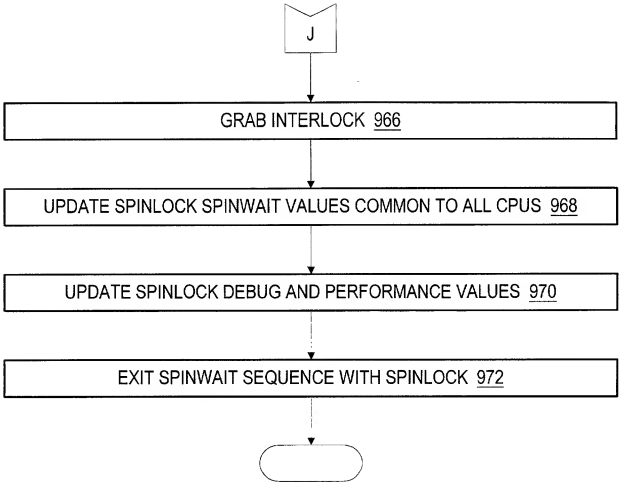


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Fig. 9F

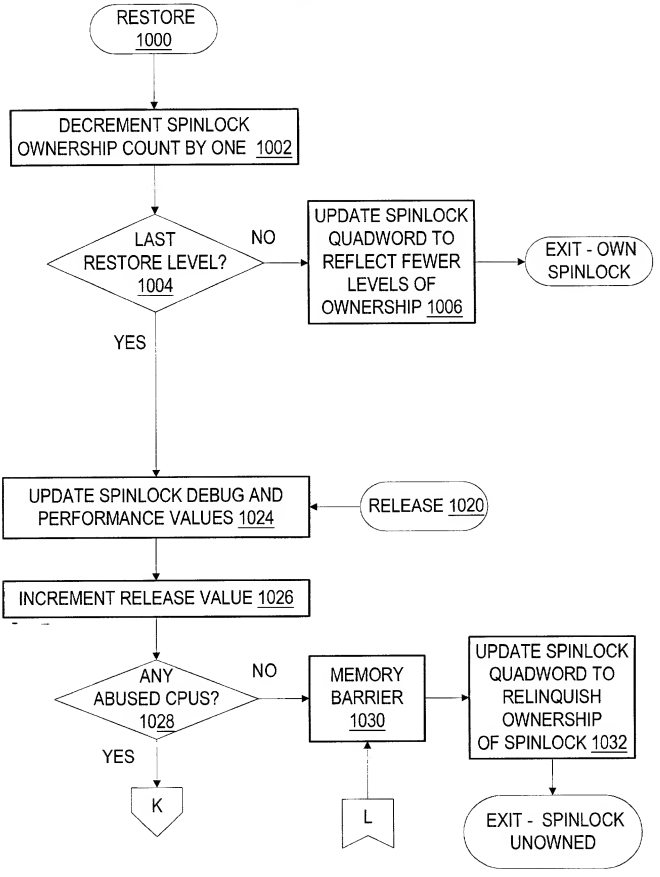

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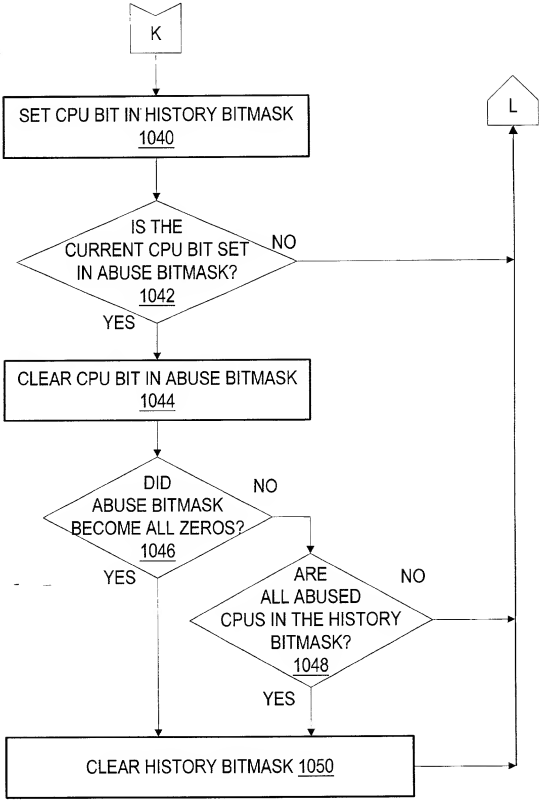
Fig. 10A



20070066244001

Fig. 10B

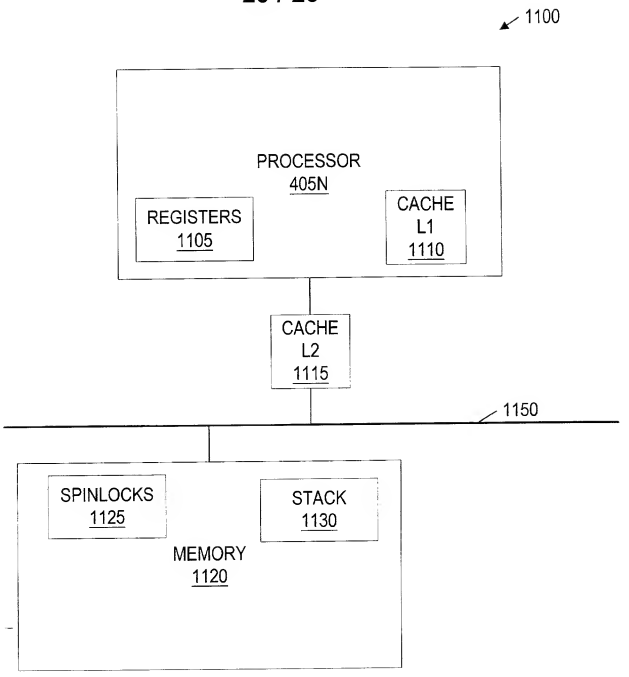


Fig. 11

20050102.0100429